ALKAID UNIT

APPROVAL OF THE APPLICATION TO FORM THE ALKAID UNIT

Findings and Decision of the Director
of the Division of Oil and Gas
Under a Delegation of Authority
from the Commissioner of the State of Alaska
Department of Natural Resources

NOVEMBER 2, 2020

CONTENTS

I. INTRODUCTION AND DECISION SUMMARY

The Department of Natural Resources, Division of Oil and Gas (the "Division") received the Application to form the Alkaid Unit (the "AKU") (the "Application"), on August 26, 2020 from the proposed AKU working interest owner, Great Bear Petroleum Ventures I, LLC("Great Bear"). The proposed AKU includes 22,804 acres. Attachments 1 and 2 set out the proposed and approved Exhibits A, B and G.

"A unit must encompass the minimum area required to include all or part of one or more oil or gas reservoirs, or all or part of one or more potential hydrocarbon accumulations." 11 AAC 83.356(a). Great Bear has submitted confidential geological, geophysical, and engineering data that demonstrate the area approved for formation includes all or part of an oil reservoir and potential hydrocarbon accumulation.

The Division finds the formation of the AKU promotes conservation of all natural resources, promotes the prevention of economic and physical waste and provides for the protection of all parties of interest, including the State. AS 38.05.180(p); 11 AAC 83.303. I approve the Application. The effective date of the formation of the AKU is November 2, 2020.

II. APPLICATION AND LEASE SUMMARY

Great Bear submitted its Application on August 26, 2020, and paid the $10,000.00 unit formation application filing fee, in accordance with 11 AAC 83.306 and 11 AAC 05.010(a)(10)(D), respectively. The Application included: the unit operating agreement, the State only unit agreement form, Exhibit A (Attachment 1), legally describing the proposed unit area, its leases, and ownership interests; Exhibit B (Attachment 2), a map of the proposed unit; and Exhibit G, Plan of Exploration, for the AKU. Great Bear also submitted evidence of notice to proper parties. The Application also included confidential economic and technical data.

The Division published a public notice in the *Anchorage Daily News* on September 6, 2020 and in the *Arctic Sounder* on September 10, 2020, under 11 AAC 83.311. Copies of the Application and the public notice were provided to interested parties. DNR provided public notice to the North Slope Borough, the City of Barrow, the City of Nuiqsut, the Kuukpik Corporation, the Arctic Slope Regional Corporation ("ASRC"), the Nuiqsut Postmaster, the Barrow Postmaster, the radio station KBRW in Barrow, as well as the Alaska Department of Environmental Conservation, the Alaska Department of Fish and Game, the Alaska Oil and Gas Conservation Commissioner, and the ADF&G Division of Habitat. The public notices invited interested parties and members of the public to submit comments by October 12, 2020. No comments were received.

The proposed unit is described in Attachments 1 and 2.

III. DISCUSSION OF DECISION CRITERIA

A unit may be formed to conserve the natural resources of all or a part of an oil or gas pool, field, or like area when determined and certified to be necessary or advisable in the public interest. AS 38.05.180(p). Conservation of the natural resources of all or part of an oil or gas pool, field or like area means "maximizing the efficient recovery of oil and gas and minimizing the adverse impacts on the surface and other resources." 11 AAC 83.395(1).

The DNR Commissioner (the "Commissioner") reviews applications related to units under 11 AAC 83.303 - 11 AAC 83.395. By memorandum dated June 30, 2016, the Commissioner approved a revision of Department Order 003 and delegated this authority to the Division Director.

The Commissioner will approve a proposed unit upon a finding that it will: (1) promote conservation of all natural resources, including all or part of an oil or gas pool, field, or like area; (2) promote the prevention of economic and physical waste; and (3) provide for the protection of all parties of interest including the state. 11 AAC 83.303(a).

In evaluating these three criteria, the Commissioner will consider: (1) the environmental costs and benefits of unitized exploration or development; (2) the geological and engineering characteristics of the potential hydrocarbon accumulation or reservoir proposed for unitization; (3) prior exploration activities in the proposed unit area; (4) the applicant's plans for exploration or development of the unit area; (5) the economic costs and benefits to the state; and (6) any other relevant factors, including measures to mitigate impacts identified above, the commissioner determines necessary or advisable to protect the public interest. 11 AAC 83.303(b).

A discussion of the subsection (b) criteria, as they apply to the Application, is set out directly below, followed by a discussion of the subsection (a) criteria.

A. Decision Criteria considered under 11 AAC 83.303(b)

1. Environmental Costs and Benefits

The proposed area is habitat for various mammals, waterfowl, and fish. Area residents may use this area for subsistence hunting and fishing. Oil and gas activity in the proposed unit area may affect some wildlife habitat and some subsistence activity. DNR develops lease stipulations through the lease sale process to mitigate the potential environmental impacts from oil and gas activity.

DNR also considers environmental issues during the lease sale process, and the unit Plan of Operations approval process. Alaska statutes require DNR to give public notice and issue a written finding before disposal of the state's oil and gas resources. AS 38.05.035(e); AS 38.05.945; 11 AAC 82.415. In the written best interest finding, the Commissioner may impose additional conditions or limitations beyond those imposed by law. AS 38.05.035(e). The AKU leases are subject to extensive mitigation measures addressing issues such siting facilities, impacts to fish and wildlife, risk from hazardous substances, fuel, and waste. Great Bear will need to comply with these mitigation measures for operations within the unit area.

Approval of the AKU formation has no direct environmental impact. This decision is an administrative action and does not authorize any on-the-ground activity. The unit formation does not entail any environmental costs in addition to those that may occur when permits to conduct lease-by-lease exploration or development are issued. The Unit Operator must obtain approval of a plan of operations from the State and permits from various agencies on State leases before drilling a well or wells or initiating development activities to produce reservoirs within the unit area. 11 AAC 83.346. Potential effects on the environment are analyzed when permits to conduct exploration or development in the unit area are reviewed. Great Bear will operate under an approved plan of operations and the plan of exploration, attached.

Mitigation measures in Great Bear's leases generally require the exploration activities take place from temporary ice infrastructure over winter months. Great Bear's POE specifically requests a deviation from

this measure by indicating its intention to conduct exploration year-round from gravel work pads and roads. Additional mitigation therefore will likely be required during the permitting phase, which may include bonding sufficient to remove and remediate the work pads and roads should the exploration endeavor prove unsuccessful.

2. Geological and Engineering Characteristics

a. Prior Exploration Activities in the Alkaid Unit Area

The proposed AKU encompasses 22,804 acres of State of Alaska oil and gas leases in the central North Slope area. The proposed unit lies approximately 13 miles south of the Prudhoe Bay Unit ("PBU").

The AKU area has been part of scattered exploration efforts since the 1960s, and remains lightly explored, despite its proximity to the Dalton Highway and Trans-Alaska Pipeline. Prior to 2012, no wells had been drilled in the proposed AKU area. Starting in 2012, Great Bear embarked on a drilling program to evaluate the unconventional resource in the AKU area, and drilled two wells, the Alcor 1 and the Merak 1. Following a significant decline in oil price, Great Bear's interest shifted to the conventional targets located in the AKU area, and in 2015, spud the Alkaid 1 well.

During the 2012 through 2016 winter acquisition windows, Great Bear acquired five new proprietary 3-D surveys covering approximately 1000 square miles in the vicinity of the proposed unit. The 2012 Great Bear/Alcor, 2013 Dalton, and 2014 Great Bear/Niksik 3-D surveys are the most relevant to the AKU proposed boundary. Great Bear used these seismic surveys to map depth of structure, fault patterns, and amplitude anomalies associated with potential reservoirs.

b. Previous Exploration (1969-2012)

The first wells in the AKU area were drilled in the late 1960's and early 1970's. The Toolik Fed 1 and Toolik Fed 2 wells were both drilled by Atlantic Richfield Company in 1969 north of the proposed AKU area. The Toolik Fed 1 well was drilled first to the northeast of the AKU area, and targeted the Ellesmerian section (Ivishak), as well as Jurassic (Kingak) and Cretaceous (Kuparuk) intervals. The well has a limited logging suite, but conventional core was acquired from several intervals. The Brookian section has oil shows in both the core and recorded in mud logs. The well was not flow tested and has since been plugged and abandoned.

The Toolik Fed 2 well was drilled northwest of the AKU leases shallower than the Toolik Fed 1 well. It only penetrated down to the Kingak and encountered thin Kupaurk C. Like the Toolik Fed 1, the Toolik Fed 2 also has oil shows in the Brookian section. The well was not flow tested and has since been plugged and abandoned.

In the early 1970's, exploration companies turned their attention to shallower targets in the AKU area. In 1973, the N. Franklin Bluffs Unit 1 was drilled by Atlantic Richfield Company, targeting Tertiary gas north of the AKU area. The well is very shallow (3500' TVD) and has a limited logging suite. It has been plugged and abandoned.

In 1974, Mobil drilled the W. Kadleroshilik 1 well to the south of the AKU area. This well is also quite shallow (~3700 TVD) and has a limited logging suite, but sidewall cores of the shallow formations were successfully acquired. The intention was to test the Tertiary and Cretaceous intervals, but the well was drilled 1500' shallow to plan. There are few indications of gas on the mud logs, and two drill stem tests returned no fluid to surface. The well has been plugged and abandoned.

Atlantic Richfield Company returned to the AKU area in 1988 and drilled the Pipeline St. 1 well to target the Kingak and Kuparuk formations. This well is the only well located in the recently proposed Talitha Unit ("TLU") acreage. The well penetrated through the Kuparuk, and the mud logs record shows in the Brookian interval. Both the Brookian section and the Kuparuk were cored. The well was not flow tested in any zone, and the well has been plugged and abandoned.

In 1991, Conoco targeted Canning turbidites and Kuparuk reservoirs with the Sequoia 1 well. Shows were noted in both the Brookian section of the well and the Kuparuk. Sidewall cores were acquired in the Canning and Staines intervals. The well was not flow tested in any zone, and the well has been plugged and abandoned.

ENI drilled the Maggiore 1 well in 2007 to evaluate the Schrader Bluff Formation in the area. Sidewall cores were acquired in the Schrader Bluff, but no flow test was attempted. Some shows were noted in the Brookian section. The well was plugged and abandoned.

c. Recent Exploration (2012 – Present)

The Alcor 1 well was the first well drilled within the proposed AKU area. Great Bear spud the well in June of 2012 and reached a final depth of 10,812' MD (10,802' TVD), having penetrated numerous formations that produce conventionally elsewhere on the North Slope, including the Kuparuk and Ivishak formations, as well as the unconventional targets, the Hue Shale/HRZ, Kingak, and Shublik formations. A comprehensive logging suite was acquired in the Alcor 1 well, and conventional core was successfully collected in the Hue Shale, Kingak, Shublik, and Ivishak formations, but no flow test was attempted. The mud logs record shows in the Brookian section. The well was subsequently plugged and abandoned.

Great Bear spud the Merak 1 well in the AKU area in August of 2012, immediately after the Alcor 1 well was drilled. The Merak 1 well reached a final depth of 11,094' MD (11,081' TVD), and penetrated the same formations seen in the Alcor 1 well, including the Kuparuk and Ivishak formations, as well as the unconventional targets, the Hue Shale/HRZ, Kingak, and Shublik formations. A comprehensive logging suite was acquired in the Merak 1 well, and conventional core was successfully collected in the Hue Shale, Kingak, Shublik, and Ivishak formations, but no flow test was attempted in this well. The well was subsequently plugged and abandoned.

After the Alcor 1 and Merak 1 wells were drilled, Great Bear suspended further exploration of the area until February of 2015, when the Alkaid 1 well was spud. The Alkaid 1 well was planned to be drilled to the Kuparuk, but TD was called early before the entire Brookian interval had been penetrated (8595' MD, 8485' TVD). A comprehensive logging suite was acquired in Alkaid 1, and sidewall cores were taken in the Brookian. Operational issues tied to the flooding of the Sag River prevented flow testing of the well at this time, and the well was suspended.

Great Bear re-entered the Alkaid well and it was successfully flow tested. A six-foot interval of the well was perforated (8,158-8,164' MD) in Upper Brookian sands, and a one-stage hydraulic fracture treatment was initiated to stimulate the well. The hydraulic fracture treatment screened out, but flow was achieved from these perforations. The well test started after the completion of fracking and perforation. In summary, the well was flowed for ~24 hours and produced a total of 108 barrels of oil at 38 API and 300 barrels of water. The final gas oil ratio (GOR) stabilized at 800 scf/stb at the end of the test. The well was gas lifted during the test. Two shallower zones were tested, in addition to these deeper perforations. Water was recovered from the West Sak Formation (5,378-5398' MD). The Ugnu Formation also is interpreted to be wet. Upon completion of the flow test, the Alkaid 1 well was suspended again.

d. Geologic and Engineering Characteristics of the Reservoirs and Potential Hydrocarbon Accumulations

Geologic, geophysical, and engineering data submitted by Great Bear to the Division in support of the application to form the AKU included interpretations of 3-D seismic data, maps based on seismic attribute analysis, structure maps, interval isopachs, and net pay maps integrating seismic and well data, and geologic cross sections. All proprietary data and interpretations will be held confidential in accordance with AS 38.05.035(a)(8)(C). Based on non-confidential well control, there is a potential hydrocarbon accumulation within the proposed Alkaid Unit.

e. Brookian Reservoir Potential

The Brookian sequence in the Alkaid Unit area represents predominantly west-to-east filling of the Colville foreland basin by sediments shed eastward from the Chukotka orogen and Herald arch and to a lesser extent, northward from the ancestral Brooks Range. These sediments filled the basin in a series of clinoformal wedges comprising extensive shallow marine to nonmarine topsets and time-equivalent slope foresets and basinal bottomsets.

Brookian reservoirs have been targeted across the North Slope, including (but not limited to) the topset Nanushuk Formation at the Willow and Pikka discoveries, and the basin fan Torok Formation at the Nuna and Moraine plays in the Kuparuk River Unit.

The target in the Alkaid Unit area is simply called the "Brookian Zone of Interest" by the operator, or Brookian ZOI, for short. It is composed of relatively thin bedded sands with interbedded shales and silts. The Brookian ZOI is quite thick in the AKU area. The Alkaid 1 well intersected ~400 of the Brookian ZOI, and TD had to be called before reaching an oil-water contact or the bottom of the formation.

f. Conclusions

Great Bear provided the Division comprehensive interpretation and analysis of the available data in support of the application to form the Alkaid Unit. The application included interpretations of 3-D seismic data, maps based on seismic attribute analysis, structure maps, interval isopachs, and net pay maps integrating seismic and well data, and geologic cross sections. Through careful interpretation of 3-D seismic and analyses of Great Bear's recently drilled exploration wells, Great Bear has identified the Brookian section in the AKU area as their preferred target to progress towards a commercial development.

Review of the confidential data and interpretations of that data provided by Great Bear reasonably supports an interpretation that the unit encompasses the minimum area required to include all or part of a reservoir and all or part of a potential hydrocarbon accumulation ("PHA"). The area encompassing the reservoir has been proven through drilling and testing, and additional delineation work will determine the commercial viability of the Brookian oil-bearing strata at and away from the Alkaid 1 well. The area encompassing the PHA, although meeting the regulatory requirement for inclusion in a unit, will require drilling, testing, and additional delineation work in order to determine its commercial viability.

3. Plans of Exploration

Great Bear submitted an initial Unit Plan of Exploration (POE), as part of the Application, and met with the Division for a technical presentation on April 8, 2020, with multiple pre-application conferences and meetings subsequently. This POE is approved by this decision and is attached as Attachment G.

In the POE, Great Bear commits to reprocess 50 square miles of 3D seismic datasets in order to inform the drilling locations for the second and third wells in the exploration program (the Alkaid 2 and Alkaid 3). Engineering work to explore input to the Trans Alaska Pipeline System via a "hot tap" as well as additional GOR and reservoir modeling will take place.

Two wells are anticipated to be drilled. The first, Alkaid #2, to a depth of 8,000' with a 10,000' lateral and 30 stage fracture stimulation job. Alkaid #3, the second, will be drilled to a similar depth and its ultimate design will be informed by the results of the Alkaid #2. The wells will be drilled from gravel pads in proximity to the Dalton Highway to allow long-term production tests to be performed on both wells. These tests are expected to take place through the Spring of 2021.

The Division approves the proposed POE, as attached. The initial POE is effective November 2, 2020 through Novemer 1, 2022. A second POE is due on August 3, 2022.

4. The Economic Costs and Benefits to the State and Other Relevant Factors

The AKU will provide economic benefits to the State through royalty and tax payments on production. Unitized development conducted under the AKU Agreement provides for development of all the unitized leases as a single lease, rather than development conducted on a lease-by-lease basis. Unitized development maximizes oil and gas recovery, promotes conservation, prevents waste, and protects all of the parties of interest.

Specifically, the AKU will provide data in an area of the North Slope where few flow tests have occurred. Additionally, GBP's tests of the Brookian ZOI will eventually provide new and informative data to other operators seeking to exploit the Brookian ZOI across the North Slope. The ambitious and novel long lateral and fracture stimulation planned for the wells will provide useful data and experience that may inform other development opportunities on the North Slope.

B. Decision Criteria considered under 11 AAC 83.303(a)

1. Promote the Conservation of All Natural Resources

A unit may be formed under AS 38.05.180(p) "[t]o conserve the natural resources of all or a part of an oil or gas pool, field, or like area." Conservation of the natural resources of all or part of an oil or gas pool, field or like area means "maximizing the efficient recovery of oil and gas and minimizing the adverse impacts on the surface and other resources." 11 AAC 83.395(9). The unitization of oil and gas reservoirs or accumulations and the formation and expansion of unit areas to develop hydrocarbon-bearing reservoirs or accumulations are well-accepted means of hydrocarbon conservation. Unitization, with development occurring under the terms of a unit agreement, can promote efficient evaluation and development of the State's resources, and minimize impacts to the area's cultural, biological, and environmental resources.

2. The Prevention of Economic and Physical Waste

Unitization, as opposed to activity on a lease-by-lease basis, may prevent economic and physical waste. Economic waste is often referred to as the drilling of wells in excess of the number necessary for the efficient recovery or delineation of the oil and gas in place. Physical waste, among other things, includes the inefficient, excessive, or improper use of, or unnecessary dissipation of, reservoir energy.

Unitization may also prevent economic and physical waste by eliminating redundant expenditures for a given level of production, or by avoiding loss of ultimate recovery with the adoption of a unified reservoir management plan. Annual approval of the AKU development activities as described in the future plans of development must also provide for the prevention of economic and physical waste.

3. The Protection of All Parties of Interest, Including the State

Alaskans have an interest in the development of the State's oil and gas resources to maximize the economic and physical recovery of the resources, AS 38.05.180(a). Approval of the AKU under the terms of the Unit Agreement requires annually approved plans of development. This will provide the Division with continued opportunities to ensure the AKU is developed in a manner which will maximize economic and physical recovery. Combining interests and operating under the terms of the AKU Agreement and AKU Operating Agreement assures an equitable allocation of costs and revenues commensurate with the resources.

The AKU formation protects the economic interests of the WIOs and the State. The formation promotes the State's economic interests because hydrocarbon recovery will be maximized, and additional production-based revenue will be derived from the increased production. Diligent exploration and development under a single approved unit plan without the complications of competing leasehold interests promotes the State's interest. Operating under the AKU Agreement provides for accurate reporting and record keeping, State approval of plans of exploration and development and operating procedures, royalty settlement, in-kind taking, and emergency storage of oil and gas, all of which will further the State's interest.

IV. FINDINGS AND DECISION

A. The Conservation of All Natural Resources

1. Formation of the AKU will provide for continued development of the unitized area(s) under the AKU Agreement and will maximize the efficient recovery of oil and gas and minimize the adverse impacts on the surface and other resources, including hydrocarbons, gravel, sand, water, wetlands, and valuable habitat.

2. The unitized development and operation of the leases in this expansion will reduce the amount of land and fish and wildlife habitat that would otherwise be disrupted by individual lease development. This reduction in environmental impacts and preservation of subsistence access is in the public interest.

3. There is potential for environmental impacts associated with development. All unit development must proceed according to an approved plan of development. Additionally, before undertaking any specific operations, the Unit Operator must submit a unit Plan of Operations to the Division and other appropriate state and local agencies for review and approval. The lessees may not commence any drilling or development operations until all agencies have granted the required permits. DNR may condition its approval of a unit Plan of Operations and other permits on performance of mitigation measures in addition to those in the modified leases and the Agreement, if necessary or appropriate. Compliance with mitigation measures will minimize, reduce or completely avoid adverse environmental impacts.

B. The Prevention of Economic and Physical Waste

1. Great Bear submitted geological, geophysical and engineering data to the Division in support of the Application. Division technical staff determined that the AKU area encompasses all or part of one or more reservoirs or potential hydrocarbon accumulations.

2. The available geological, geophysical, and engineering data justify including the proposed lands, as described in Section 2(a)-(e) of this decision.

C. The Protection of All Parties in Interest, Including the State

1. The unit formation as approved protects all parties' interests including all Alaskans, who have an interest in the development of the State's oil and gas resources to maximize the economic and physical recovery of the resources.

2. The economic, geological, geophysical, and engineering data that Great Bear provided reasonably justify the inclusion of the AKU acreage under the terms of the applicable regulations governing formation, expansion, and operation of oil and gas units and participating areas (11 AAC 83.301–395) and the terms and conditions under which these lands were leased from the State.

3. Great Bear provided evidence of reasonable effort to obtain joinder of any proper party to the Agreement - there were no additional proper parties.

4. Great Bear holds sufficient interest in the unit area to give reasonably effective control of operations.

5. The unit formation meets the requirements of 11 AAC 83.303.

6. The Division complied with the public notice requirements of 11 AAC 83.311.

7. The unit expansion will not diminish access to public and navigable waters beyond those limitations (if any) imposed by law or already contained in the oil and gas leases covered by this decision.

8. The AKU Agreement provides for additional expansions and contractions of the unit area in the future, as warranted by data obtained by exploration or otherwise. The AKU Agreement thereby protects the public interest, the rights of the parties, and the correlative rights of adjacent landowners.

9. The approved unit is effective November 2, 2020.

For the reasons discussed in this Findings and Decision, I hereby approve the AKU formation.

A person affected by this decision may appeal it, in accordance with 11 AAC 02. Any appeal must be received within 20 calendar days after the date of "issuance" of this decision, as defined in 11 AAC 02.040(c) and (d) and may be mailed or delivered to Corri A. Feige, Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska 99501; faxed to 1-907-269-8918, or sent by electronic mail to dnr.appeals@alaska.gov. This decision takes effect immediately. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.

If you have any questions regarding this decision, contact Aaron O'Quinn with the Division at 907-269-8817, or by email at aaron.oquinn@alaska.gov.

DocuSigned by:
Tom Stokes
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11/2/2020

Tom Stokes
Director
Division of Oil and Gas

Date

cc: Department of Law

V. ATTACHMENTS

1. Alkaid Unit Proposed Exhibit A: Description of Lands within the Proposed Alkaid Unit
2. Alkaid Unit Proposed Exhibit B: Map of Alkaid Unit Area
3. Alkaid Unit Exhibit G: Plan of Exploration

1. Alkaid Unit Proposed Exhibit A: Description of Lands within the Proposed Unit

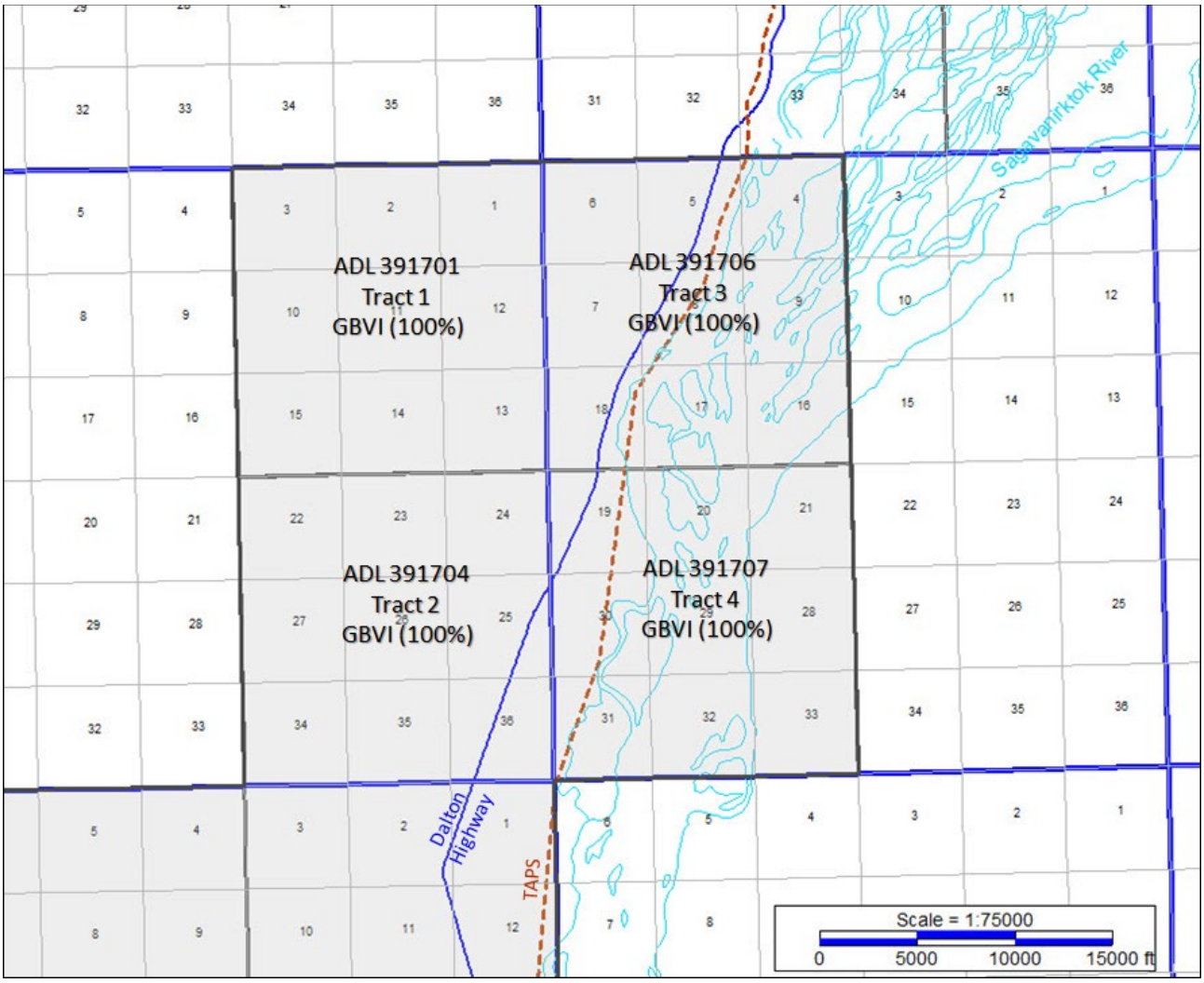
EXHIBIT A

Unit Tract Number	ADL	Legal Descriptions	Unitized Acres	Royalty Rate	ORRI Owners and Interests	Working Interest Owners and Interests	Lease Primary Expiration Date
1	391701	T 7N, R 13E, Umiat Meridian, Alaska. Section 1, Surveyed by Protraction, All; Section 2, Surveyed by Protraction, All; Section 3, Surveyed by Protraction, All; Section 10, Surveyed by Protraction, All; Section 11, Surveyed by Protraction, All; Section 12, Surveyed by Protraction, All; Section 13, Surveyed by Protraction, All, including the bed of the unnamed lake; Section 14, Surveyed by Protraction, All; Section 15, Surveyed by Protraction, All;	640.00 640.00 640.00 640.00 640.00 640.00 640.00 640.00 640.00 **5760.00**	16.66667%	Geokinetics USA, Inc.: 1.61%	Great Bear Petroleum Ventures I, LLC: 100.00%	4/30/2021
2	391704	T 7N, R 13E, Umiat Meridian, Alaska. Section 22, Surveyed by Protraction, All; Section 23, Surveyed by Protraction, All; Section 24, Surveyed by Protraction, All including the bed of the unnamed lake; Section 25, Surveyed by Protraction, All; Section 26, Surveyed by Protraction, All; Section 27, Surveyed by Protraction, All; Section 34, Surveyed by Protraction, All; Section 35, Surveyed by Protraction, All including the bed of the unnamed lake; Section 36, Surveyed by Protraction, All including the bed of the unnamed lake;	640.00 640.00 640.00 640.00 640.00 640.00 640.00 640.00 640.00 **5760.00**	16.66667%	Geokinetics USA, Inc.: 1.61%	Great Bear Petroleum Ventures I, LLC: 100.00%	4/30/2021

3	391706	T 7N, R 14E, Umiat Meridian, Alaska. Section 4, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 5, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 6, Surveyed by Protraction, All; Section 7, Surveyed by Protraction, All; Section 8, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 9, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 16, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 17, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 18, Surveyed by Protraction, All including the bed of the unnamed lake;	640.00 640.00 594.00 597.00 640.00 640.00 640.00 640.00 599.00 **5630.00**	16.66667%	Geokinetics USA, Inc.: 1.61%	Great Bear Petroleum Ventures I, LLC: 100.00%	4/30/2021
4	391707	T 7N, R 14E, Umiat Meridian, Alaska. Section 19, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 20, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 21, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 28, Surveyed by Protraction, All; Section 29, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 30, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 31, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 32, Surveyed by Protraction, All including the bed of the Sagavanirktok River; Section 33, Surveyed by Protraction, All including the bed of the Sagavanirktok River;	602.00 640.00 640.00 640.00 640.00 605.00 607.00 640.00 640.00 **5654.00**	16.66667%	Geokinetics USA, Inc.: 1.61%	Great Bear Petroleum Ventures I, LLC: 100.00%	4/30/2021

2. Alkaid Unit Proposed Exhibit B: Map of Formation Unit Area

Exhibit B


ADL 391701
Tract 1
GBVI (100%)
ADL 391706
Tract 3
GBVI (100%)
ADL 391704
Tract 2
GBVI (100%)
ADL 391707
Tract 4
GBVI (100%)
Sagavanirktok River
Dalton Highway
TAPS
Scale = 1:75000
0
5000
10000
15000 ft

3. Alkaid Unit Exhibit G: Plan of Exploration

Exhibit G

FIRST PLAN OF EXPLORATION

ALKAID UNIT

AREA EXPLORATION HISTORY: PRE-UNIT ACTIVITIES

The area around and including the proposed Alkaid and Talitha Units has seen sparse exploration drilling activity over the last 50+ years with a total of less than 10 wells in the adjacent area penetrating the primary zones of interest at Alkaid and Talitha. The exploration activity can be divided into three distinct phases: 1) early post Prudhoe discovery stepout drilling from 1969 – 1974; 2) focused exploration tests from 1980 – mid 90's driven by increased 2D seismic data coverage; and 3) post 2010 Great Bear Petroleum entrance driving regional 3D seismic coverage across the initial vast leasehold. ARCO dominated Phase 1 with tests that focused on expanding the Kuparuk River Unit play to the south and east. Various operators drilled wells in Phase 2 with continued focus on the Kuparuk and emerging interest in Brookian reservoirs. Phase 3 has been dominated by Great Bear Petroleum 3D seismic acquisition and drilling of 2 stratigraphic test wells at Alcor (2012) and Merak (2012) and a focused exploration test at Alkaid (2015, flow test in 2019).

Phase 1 Activity:

ARCO drilled 2 wells proximal to the Alkaid and Talitha projects. The Toolik #1 (TD 10814') and #2 (TD 8700') were drilled in 1969. Both were plugged and abandoned having drilled to the targeted Kuparuk equivalent depth. Mudlog shows in the Brookian section were noted with Kuparuk sands penetrated but not tested.

ARCO drilled the North Franklin Bluffs test in 1973 (TD 3500') penetrating shallow Brookian aquifers and no hydrocarbons. Mobil drilled West Kadleroshilik #1 (TD 4566') in 1974 on the east side of the Sagavanirktok River southeast of the Talitha project. The well penetrated shallow Brookian aquifer with no hydrocarbons.

Phase 2 Activity:

Significant increases in 2D seismic data acquisition in the late 70's – early 1990's in the Central North Slope area south of the Kuparuk River Unit and Prudhoe Bay Unit led to focused exploration tests by various operators. ARCO drilled the Pipeline State #1 well in 1988. Originally planned to TD at approximately 13,000', the well was drilled to 10,460' into the Miluveach Formation. Significant oil shows were encountered through the Brookian Campanian strata and in the Kuparuk sands with 4 zones of interest cored. The well was plugged and abandoned with no tests. Conoco drilled Sequoia #1 in 1992 with a TD at 8910' in the Jurassic Kingak Formation. Significant oil shows were recorded in the lower Brookian Torok and Seabee equivalent strata and the Kuparuk Formation. The well was plugged and abandoned with no tests. Publicly available well files through 2013 did not include elogs across the Kuparuk interval for either well. Great Bear found reference to an LWD across the Kuparuk intervals at Pipeline State #1 and Sequoia #1. After a request to AOGCC to follow up with Conoco (then holding ARCO's legacy data), LWD data was delivered.

ENI drilled the Magiorre #1 well in 2007 with a TD of 9500'. The well was highly deviated through Brookian strata and recorded modest oil shows. The well was plugged and abandoned with no tests.

Phase 3 Activity:

Great Bear Petroleum's entry into North Alaska in October 2010 brought renewed focus to the Central North Slope area. Great Bear's technical focus investigating the potential for source rock resource play development and more traditional conventional plays was coupled with a regional 3D acquisition plan that spanned 5 successive years of acquisition beginning in 2012. Great Bear drilled two stratigraphic test wells in 2012, Alcor #1 (TD 10,812') and Merak #1 (TD 11,094'). Both wells were drilled into the Ivishak Formation with whole core samples taken in the Hue shale, GRZ/HRZ, Kingak, Shublik and Ivishak Formations. Oil shows were recorded in Campanian and Kuparuk strata correlative to the reservoir zones at Alkaid and Talitha.

Three modern 3D datasets had been acquired, merged and uniformly processed by mid-2014. The significant seismic anomalies were observed throughout the Campanian section over much of the Great Bear lease position. RSI (global high tech geophysical contractor) was engaged to model the seismic responses that were observed. AVO and detailed calibrated Inversion methods were employed to derisk and rank the portfolio of seismically defined prospects.

Alkaid #1 (TD 8,595') was drilled during the 2014-2015 Winter drilling season. The well targeted a conventional reservoir of Campanian age and was planned to TD through the Kuparuk Formation. The primary zone of interest in the Campanian exhibited a strong geophysical response modeled to be light oil. Operational challenges and the historic Sag River aufeis triggered flooding of the Dalton Highway forced an early TD call and cessation of operations and suspension of the well.

Great Bear continued expanding the 3D seismic database through 2015 and 2016. In February 2019, Alkaid was re-entered and flow tested. A limited zone was perfed and stimulated achieving sustained flow of 35api oil (typed to Cretaceous source). Following the successful flow test in 2019, the Campanian play was proven productive and also proved that reservoired, light oil could be resolved with modern 3D analytical methods. In mid 2019, eSeis (Houston based petrophysical and geophysical experts with deep Alaska experience) were engaged to further resolve and quantify the

growing potential within the Campanian and Kuparuk intervals with a heavy focus on Talitha and Alkaid charged reservoir mapping aimed at optimizing development planning.

ALKAID UNIT EXPLORATION PROGRAM

The Unit Operator intends to undertake the following activities:

A. Non-Drilling Activities

- Reprocessing approximately 50 square miles of merged 2012 - 2016 3D datasets, which will include Pre-Stack Depth Migration (PSDM) for the Alkaid Unit area. PSDM has not previously been applied to any of our 3D dataset. This methodology, when combined with the logging while drilling data will reveal areas of better reservoir quality and assist in selecting the interval for the lateral drilling.
    - This work will be completed prior to spudding of Alkaid #2 in order to inform decision associated with the target interval for the lateral. It is highly unlikely that this review will result in the relocation of the drillsite or tophole location of Alkaid #2, but it could result in slight deviation from a true vertical well before hitting TVD. Upon completion of reprocessing, Unit Operator shall deliver a complete copy to the Director.
- Expanded review of Campanian reservoir characterization and productivity potential within the Alkaid Unit area.
- Update our gas to oil ratio (GOR) model for Alkaid and develop a gas handling strategy for future Alkaid Unit development within a range of oil production estimates.
- Engage an outside engineering firm to produce an engineering study on a conceptual "hot tap" of TAPS within or near the Alkaid and Talitha Units, working in close consultation with Alyeska Pipeline Service Company.

B. Drilling Activities

The initial Alkaid wells have been located to accomplish four purposes, 1) Reach with the drill bit portions of the Greater Alkaid hydrocarbon accumulation predicted to contain the most attractive reservoir qualities; 2) Delineate the lateral extent of the producible reservoir; 3) Maximize the potential that these initial wells will become long-term producing wells; 4) Minimize the environmental impacts by placing the gravel pads within the Dalton Highway/TAPS transportation corridor.

These wells and production tests will provide the following information: A) Whether we've properly mapped the northern extent of the reservoir (Alkaid #2) and the eastern extent (Alkaid #3); B) The initial production rate, decline curve, and production profile from a long horizontal well that is multi-stage fracture stimulated, C) Greater confidence in our estimate of EUR from these wells.

Alkaid #2 – The drillsite will be located on ADL 391704; U07N014E05; the tophole location will be approximately 69 deg 58 min 56.42 sec, -148 deg 42 min 7.89 sec. These are generally vertical wells with long laterals kicking off approximately 500' above TVD into the target zone.

Total vertical depth will be approximately 8000' to the basin floor of the Brookian, a level not reached with the Alkaid #1 well. Measurement while drilling (MWD) will be used to evaluate the entirety of the intermediate hole from approximately 3500' to TVD. Multiple interesting zones may be encountered throughout the drilling. The well will penetrate the entirety of the Brookian section. This will include an evaluation of the deltaic interval of the Brookian progradation. The log suites are expected to include: Quad Combo, FMI, RFT, rotary sidewall cores, NMRI, Caliper, and possibly others.

The laterals will be approximately 10,000'. The lateral for Alkaid #2 will run toward the southwest. The lateral will be fracture stimulated, with 12,000,000 lbs of proppant planned at this time. This will be placed through 30 stages of approximately 400,000 lbs per stage.

A long-term production test will be conducted to determine the decline curve and production profile from the well. The production test must be of sufficient duration to establish the initial production rate, the slope of the decline curve, and the production rate at which the decline curve levels off to accurately predict the production "tail". We currently estimate that the production test will be six to nine months in duration.

Drilling operations are scheduled to take place in Summer 2021 from a gravel pad just west of the Dalton Highway. A currently estimated project timeline is as follows:

DATE	ACTIVITY	DESCRIPTION
June 2021	Construction of gravel driveway and pad for Alkaid #2	The first drill pad is constructed along with the driveway connecting it to the Dalton Highway
July 2021	Mobilize Rig to Alkaid #2 Well Site	Drilling rig is mobilized (likely from Deadhorse) to the Alkaid #2 Roadside Pad
July-Aug 2021	Drill Alkaid #2 well	Drilling operations are conducted on the Alkaid #2 well
Aug 2021	Mobilize Frac Equipment to Alkaid #2	Rig is removed and hydraulic fracturing equipment is moved to the Alkaid #2 drill site
Aug-Sept 2021	Fracture Stimulate Alkaid #2 Well	Hydraulic fracture stimulation operations take place at Alkaid #2 drill site
Sept 2021 – Mid-2022	Pilot Production Test at Alkaid #2 Well	Production test to determine the nature of production decline curve from the Alkaid #2 well

Alkaid #3 – There are many factors that will determine whether the results at Alkaid #2 support the drilling of Alkaid #3. Those factors will even shift between now and the drilling of Alkaid #2 as Pantheon continues to refine the pre-drill assessment of the Greater Alkaid hydrocarbon accumulation. The MWD data and logging data acquired while drilling Alkaid #2 will also be relevant to the decision whether to drill Alkaid #3. External factors, such as oil price expectations and anticipated fiscal and commercial terms, will also play a role. Finally, the initial production rate, and subsequently the overall production profile from Alkaid #2 will be very influential. There is no hard and fast threshold for the initial production level necessary to support drilling Alkaid #3, it will depend on a large number of factors.

The Alkaid #3 drillsite will be located on ADL 391704; U07N014E19; the tophole will be at approximately 69 deg 56 min 23.17 sec, -148 deg 45 min 24.56 sec. These are generally vertical wells with long laterals kicking off approximately 500' above TVD into the target zone.

Total vertical depth will be approximately 8000' to the basin floor of the Brookian, a level not reached with the Alkaid #1 well. Measurement while drilling (MWD) will be used to evaluate the entirety of the intermediate hole from approximately 3500' to TVD. Multiple interesting zones may be encountered throughout the drilling. The well will penetrate the entirety of the Brookian section. This will include an evaluation of the deltaic interval of the Brookian

progradation. The log suites are expected to include: Quad Combo, FMI, RFT, rotary sidewall cores, NMRI, Caliper, and possibly others.

The laterals will be approximately 10,000'. The lateral for Alkaid #3 will run toward the northeast. The lateral will be fracture stimulated, with 12,000,000 lbs of proppant planned at this time. This will be placed through 30 stages of approximately 400,000 lbs per stage.

A long-term production test will be conducted to determine the decline curve and production profile from the well. The production test must be of sufficient duration to establish the initial production rate, the slope of the decline curve, and the production rate at which the decline curve levels off to accurately predict the production "tail". We currently estimate that the production test will be six to nine months in duration.

Drilling operations are scheduled to take place in Winter/Spring 2021 from a gravel pad just west of the Dalton Highway. A currently estimated project timeline is as follows:

DATE	ACTIVITY	DESCRIPTION
Feb – March 2022	Construction of gravel driveway and pad for Alkaid #3	The second drill pad is constructed along with the driveway connecting it to the Dalton Highway
March-April 2022	Mobilize Rig to Alkaid #3 Well Site	Drilling rig is mobilized to the Alkaid #3 Roadside Pad
April-May 2022	Drill Alkaid #3 Well	Drilling operations are conducted at Alkaid #3 drill site
May-June 2022	Mobilize Frac Equipment to Alkaid #3	Rig is removed and hydraulic fracturing equipment is moved to the Alkaid #3 drill site
May-June 2022	Fracture Stimulate Alkaid #3 Well	Hydraulic fracture stimulation operations take place at Alkaid #3 drill site
June 2022 – Late 2022	Pilot Production Test at Alkaid #3 Well	Production test to determine the nature of production decline curve from the Alkaid #3 well

Development Plan

The final development plan will be determined following results of the Alkaid #2 and #3 wells. At this time, the expectation is that Alkaid will be developed by primary depletion.